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Statistics show that the IT expenditures recorded a constant growth during the last 20 years, which shows a continuous growth of the effort of the companies or states dedicated to the extension of the IT sector. Unfortunately, these efforts have not always resulted in a similar growth of the competitiveness and performance of the organizations. In the authors' opinion, in the large IT projects (more than 1,000,000 €) the success rate does not exceed 1/7 in Romania and 1/4 - 1/5 at the world level. The causes should not only be searched in the way these systems are designed and implemented, but also inside the beneficiary organizations, where the information systems subject to updating cannot always successfully adapt themselves to the level of performance of an IT solution. This paper tries to prove that the management of IT activities in a company is not only a problem of the IT department, but one of the top management, and its amplexness justifies the usage of the term „governance” instead of „management”.

Keywords: IT Governance, Maturity model, Maturity levels

GOVERNANCE VS. MANAGEMENT

Taken over from politics, where its common meaning is “capacity (art, from some points of view) of ruling a state, a province, or a geographic region which has a certain degree of autonomy”, the word “governance” still causes disputes when it is used in different fields of knowledge. It seems that the first step in extending the meaning of this term was taken by the specialists in the field of organizational management, who considered that other terms, as “piloting” or, simply, “management”, are not comprehensive enough for describing the ruling act of such an organization⁵⁸⁰, because of the complexity and multitude of the processes performed in a company, and because of the strong interaction between these processes and the economic, social and political environment they belong to. The term *Corporate Governance* appeared at the beginning of the 1990's and, shortly after, it was extended downwards to the components of the management system, whose greater and greater complexity demanded, in the opinion of some specialists, management techniques similar to those used in ruling of states or regions.

Probably one of the most used terms of this family is *IT governance*. There are, in our opinion, four major attributes of this notion which distinguish it from “management of IT activities” or “management of the IT Department” in an organization:

- holistic and integrated
- synergic
- strategic
- sliding

The *holistic feature*, defining for this collocation, refers to the subsidiary of the IT system to the institution's management and to the fact that the main goals of the IT system must represent a subset of the secondary goals of the whole organization's strategy. The goals of IT governance are often found among the strategic options of the company board. For example, implementing the specific Business Intelligence technologies inside the Management Information System of the firm and integration of the existing applications and data in the new information system as a goal of IT governance represents a way to achieve a management-specific goal, which increases the quality level of the decision making process by a more rigorous substantiation.

The *synergic feature* regards the unitary coordination, at the level of the IT system, of all its components and the orientation of each of the components and of the relations between them to achieving the common goals, established at the system level. Excessive focusing inside the management processes of the IT activities on the development of one of the system components can only be accepted in some support activities as, for example, the management of the local network, but not at the top level. At this level we speak about IT governance as a management philosophy according to which each of the component entities exists and develops only to support the synergic activity of achieving a unique goal of the whole set of components.

In our opinion the leading *strategic feature* of IT governance is also defining. Practicing the prevision function of management on long periods of time (3 to 5 years), dramatically distinguishes, with regards to managing IT activities, “management” from “governance” and so does the way the objectives of the company's strategy generate average and long term objectives for the IT system. Even if, during the dispute between the French-speaking and the Anglo-Saxon specialists on the paternity of the term “governance”, an “equal” sign was sometimes drawn between the terms “governance” and “management”, we believe that the difference between the two refers both to

580 BURLAUD, A.; GERMAK, P.; MARCA, J.P. – Management des systemes d'information, Editions Foucher, 2007. ISBN 978-2-216-10575-5 pag.34-35

the ampleness of the managed system, to its complexity and the time scale of the decisions made, and the approach in correlation with other systems with which it interacts in a synergic manner.

Another typical element of *IT governance* is the fast development of IT specific tools and concepts. So, when it is about designing wide systems, or when strategic objectives for the IT system are established, it can happen that, not long after these objectives were stated, they become obsolete or, by emerging of new instruments and concepts, to lose their character of major and long term demands. Under these circumstances these goals and objectives must slide on the vertical axis of the technological progress, being always subdued to the global mission of the organization.

THE NECESSITY OF IT GOVERNANCE

If, until not very long ago, the expenses with development and maintaining the automated information systems of a company usually represented a relatively low quote of the total costs of that institution, once these systems started to migrate fast from the automatization of execution processes to the management ones, a great demand for complex information system implementations occurred, first from the managers of the most important companies and afterwards from the management of medium and even small firms. The costs of design, implementation, running and maintaining of these systems became comparable with the budgets of large departments, as marketing, or even production.

Emerging of new integrating technologies, which started from the premise that the value of an IT integrated system is normally greater than the sum of the component subsystems' values, while the relation between their costs is inverted, led to a massive orientation of IT investment to achieving turn-key systems. Specific to these systems, usually built on a multilevel philosophy, was that, starting from the top management requirements, functional specification and interface levels were developed vertically in a top-to-bottom manner, on a common data and business process backbone, rendered by a content management system. Subsequently other groups of interrelated applications were developed horizontally for each level so that, based on the initial specifications, they met the requirements of their level and also synchronized one another with modules belonging to other levels by means of the two basic elements: the data deposit and the business flow.

Besides the increase in performance and productivity of the system developers and the impact of these features on the company management, this approach also created two big groups of problems whose solution is the key to IT systems' success: organizing the company and even some processes and major business rules, as well as organizing and management of all IT structure development and running activities, which have meanwhile grown extremely complex.

A study⁵⁸¹ developed by the well known consultancy company Gartner shows that during the last few years, we have witnessed an unprecedented growth of the companies' expenditures for re-engineering and maintaining of their own IT systems, with a rate of 5-8%. Only in 2007 these expenditures exceeded \$3 trillion. Under these circumstances, the design errors, budget overflows, security breeches and incoherence caused losses of more than \$600 million⁵⁸² in 2006. An even clearer image of the disaster is given to us by Rubenstein, in "Standish Group Report"⁵⁸³.

Consequently, the lack of a high performance control exerted at all levels and coordinated by the top management of the company, the lack of a coherent ruling of the whole range of IT activities, the lack of coordination between these activities and the other categories of activities run in the company and especially the lack of an intelligent strategy of the firm, containing elements of the IT strategy in all its components, can turn the IT investment into a huge loss of resources, trust, performance and competitiveness.

In the above statements we identify the features of IT governance as they were described at the beginning of this paper. As shown in⁵⁸⁴ we can briefly emphasize the main classes of needs which determine the IT governance processes:

- need of increasing the company's efficiency or, as stated in the above mentioned article, the need of getting more by paying less;
- need of innovation and completing several initiatives in parallel, which is a common IT governance problem, given that requests for system modification exceed the IT response capacity, causing dissatisfaction;
- need to keep large projects on track, which normally occurs at non-experienced companies which try to develop ambitious IT projects (as, for example, ERP's) without having the expertise in avoiding or recovering after major failures;

⁵⁸¹ GARTNER. "Gartner Says World-Wide IT Spending to Surpass \$3 Trillion in 2007." *Business Wire*, October 8, 2007.

⁵⁸² HUBER N. (Gartner) - Firms Waste £351bn Each Year on Ill-Concieved IT Projects." *ComputerWeekly.com*, March 21, 2007.

⁵⁸³ RUBENSTEIN. D. - "Standish Group Report: There's Less Development Chaos Today." *Software Development Times*, March 1, 2007.

⁵⁸⁴ HAINAUT, J.; WALKER, P. - Getting Serious About IT Governance; Can You Afford to Put it Off? *DM Direct*, February 8, 2008

- need to avoid recurring of data security incidents;
- need to meet compliance deadlines, taking into account that compliance initiatives can result in overlapping or conflicting demands, which can sometimes make the use of multiple drivers necessary.

From another point of view, the role of IT governance is to balance the requirements of the investors and of the rest of the stakeholders, by focusing the efforts of the organization on adding value, under an adequate control and with high accountability.

Regarded as a system by which the IT resource is controlled and driven, IT governance must first consider the roles and accountability of each person or group in the firm as, for example, the board or second level managers. In order to adopt the fundamental decisions concerning the IT system, it also has to take into account the set of all the business rules and processes. Finally, IT governance must build and consolidate an effective structure and use it to establish the IT goals, to carry them out and to monitor their development, starting from the company's general objectives.

In our opinion, in order to reveal all the senses and meanings of the term "IT Governance", we must simultaneously consider the following two dual aspects of this item:

- using IT as the main governance tool of the enterprise;
- managing the entire IT system in the same manner and using the same methods and techniques as in ruling the company.

This point of view also gives a helping hand in answering the question "what training, what knowledge and what skills must an IT manager have, and in what proportion?". The answer is obviously not simple, and in our opinion it depends both on the level of management/governance techniques used in managing the IT system and the IT structure complexity, as shown in Figure nr. 1.

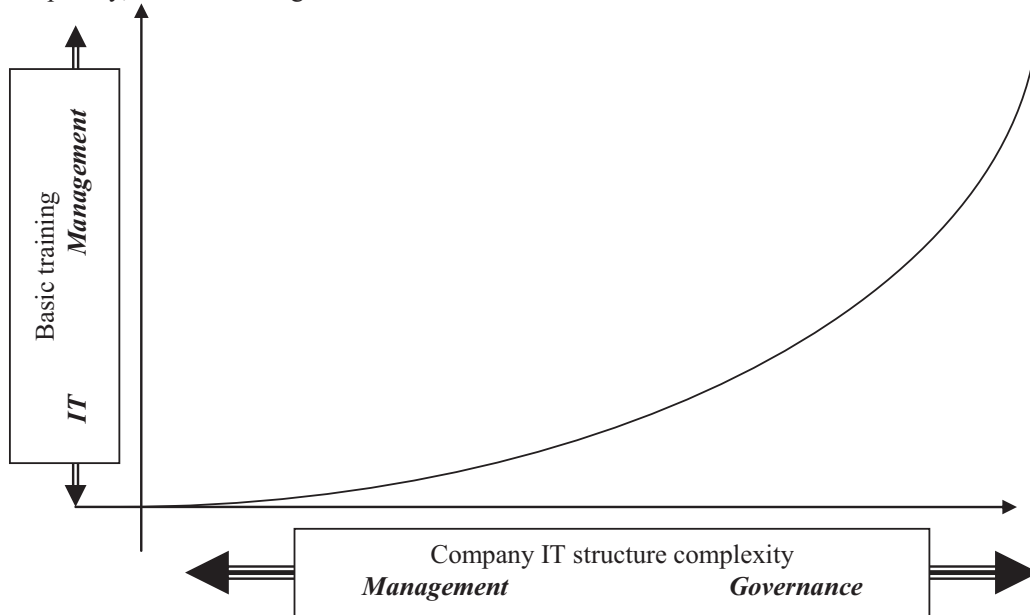


Figure nr.1 Basic training and the level of knowledge necessary for the IT manager of an organization

According to the above diagram, for a low complexity IT system, with an infrastructure of low extension and complexity and within an approach which considers IT as a support activity for other departments, the IT manager must mainly have an IT training, with some entry level knowledge of management. As opposed to this, in a larger IT structure with the extension of specific functions of the IT system to the top management level and implemented IT governance concepts, the leading person or group in charge of coordinating this activity must mainly have manager skills.

IMPLEMENTATION OF IT GOVERNANCE TECHNIQUES AND METHODS

Specialists consider that an IT solution, whether it is a simple application or a complex system, has as much strength as it has the capability to satisfy the needs of its beneficiaries. Speaking about the implementation of IT governance as the main management system of the IT resource, the success of this enterprise is given by the coherence between the solution itself, the implementing manner, the level of the IT and management culture of the organization and its close environment and the extent of performance-focusing of the company management.

In other words, the balance between the technological and performance level of the solution and the level of organizational, management and technical knowledge and culture of the personnel of the firm and of the companies

and organizations with which the firm communicates regularly is the key factor which makes the difference between really successful solutions and costly (often resounding) failures.

As a consequence, when we look for the best and most efficient solution for IT Governance, we must consider two important aspects: one is the level of the organizational culture, the capability level of the IT and management system and the maturity and performance of the entire company, and the other one is the range of appropriate solutions offered by the market for the given situation. For a correct valuation of the existing solutions, there are a lot of instruments and information sources available (both scientific and commercial) which can perform a very refined analysis. For the estimation of the general level of the organization, an adequate and as objective diagnose as possible is necessary.

For this diagnose we recommend a method known as Capability Maturity Model⁵⁸⁵ - CMM, which, based on identification of some features of management, respectively IT governance, and on their comparison to a series of preset levels, shows the maturity degree of the IT system.

In a nutshell, CMM tackles five different aspects which can determine one of the five possible levels of the model where the IT structure can be situated.

1. Maturity Levels – (ML). They consist of a layered framework which gives the steps to be followed by the organization to the stage needed to engage in continuous improvement.

2. Key Process Areas – (KPA). These are groups of related activities which lead to achieving a set of objectives of utmost importance, when performed collectively.

3. Goals – (G). The goals of a key process area are regarded as a sum of conditions to be fulfilled in order to state that the group of activities was implemented in an effective, long lasting way.

4. Common Features – (CF). They refer to the practical ways of implementing the key process area. They include: Commitment to Perform, Ability to Perform, Activities Performed, Measurement and Analysis, and Verifying Implementation.

5. Key Practices – (KP). They describe those infrastructure elements or processes which significantly contributed to implementing and institutionalization of the key processes.

When we wish to identify the state of the organization and the most suitable approach in order to implement IT Governance, the five levels we can refer to are as follows:

Level 1 – Initial. At this level the processes are usually not documented and their modification is based on the user or event. It is assumed that, at this level, the organization does not have a steady environment and it may not know all the environmental elements or their interactions.

Level 2 – Repeatable. A series of application development processes are repeatable and generate positive results. Yet, they are not used in all projects running in the organization. In some cases, low complexity project management techniques are used. Level 3 – Defined. The set of standard processes within the company, which is the basis of the 3rd level, is established and improved every now and then. The organization's management establishes process objectives for its set of standard processes, and monitors the proper addressing of these objectives.

Level 4 – Managed. By using process indicators, the board of managers in the company can actually control the running processes and, when applicable, they can find means of adjustment of processes to certain projects, without recording significant drops in quality or deviations from specifications. At this level, the firms set quantitative quality goals for the design and maintenance of IT programs⁵⁸⁶.

Level 5 – Optimized. This maturity level focuses on achieving continuous improvement of the process performance both in "steps" (incremental improvement of technology) and in innovative leaps. The organization sets quantitative goals for process perfecting, which are permanently adjusted to the changes in its objectives and used as criteria for the managing action improvement.

As described above, one of the first activities to be done with a view to implementing the new methods of IT Governance is estimating the company situation at the beginning of the reorganization process. Identification of the typical elements of the company and its level is also necessary within the Maturity Model. On this purpose specialists recommend a systematic approach based on examining a few distinct stages, such as:

- Identification of the range of operation of the existing IT system

- Localization of the critical spots for the business development, which are to be tackled priority. The validity of the Pareto principle is also proven in this case, namely in order to eliminate or diminish 80% of dysfunctions, one must take action over the main 20% of the causes to the weak points inside the system.

The five levels of the Maturity Model are schematically described in Figure nr.2.

⁵⁸⁵ HUMPHREY, W.,S.; - Managing the software processes. Addison Wesley Professional, Massachusetts, 1989.

⁵⁸⁶ <http://wikipedia.org>

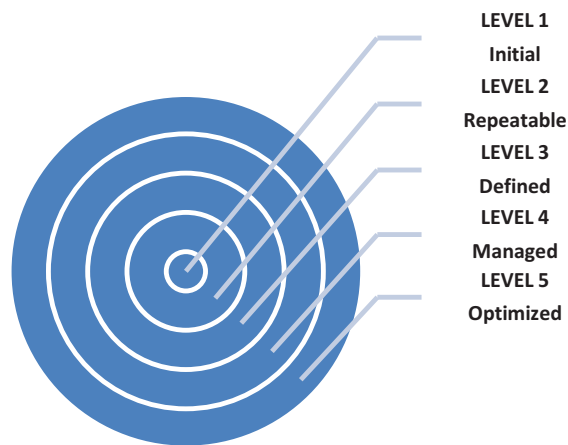


Figure 2. The levels of the Maturity Model

situated and how high it should be? How helpful is it for the business and what is wanted?

After this preliminary analysis, due to the Maturity Model, it is necessary to determine the key process areas. For this, one normally develops a simple framework that focuses on high-level factors covering the IT performance areas that are of critical concern to the business. The maturity of critical performance areas will help diagnose where governance improvement efforts could help the most.

Determination of the actual maturity level of the company can be done by taking into account all the key performance areas and their individual estimated levels. It is very important at this stage to set up in a professional manner the maturity level which is optimal for the business. Higher-level stakeholders need to identify which performance areas are important to rate and where they should be on the maturity model – not in theory, but in practical terms. It may also be a good idea to qualify the rating by a planning horizon such as one to three years.

Finally, the strategy of implementation of a new model of IT governance is a result of comparing the desired level of maturity to the perceived level of maturity, the business and IT should be able to agree on an acceptable set of required improvements. Setting up the goals and developing an action plan that addresses the largest gaps prioritized by business must be followed by planning periodic reassessment, recommended for helping the organization measure improvement or refocus efforts based on changing needs.

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